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ABSTRACT

This report describes the development of a master plan for identifying and accommodating disadvantaged and handicapped students within the vocational education programs of the Virginia Community College System. The general project objectives reported on were: (1) to determine the potential number of disadvantaged and handicapped students by college region; (2) to identify means for providing special programs serving these students; (3) to examine the number of these students now being served in different types of specialized instructional offerings; (4) to identify state, federal, and other programs that are potential sources of support; and (5) to make recommendations on a plan that would include referral of students, provision of instructional materials, and training of needed personnel. The project's work schedule consisted of reviewing pertinent literature, contacting appropriate state and federal agencies regarding legislation and programs, examining available statistical information collected by the 22 community college regions, and directly contacting and interviewing staff and clients of a 6-college sample. (AL)

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IDENTIFICATION AND ACCOMMODATION OF DISADVANTAGED AND HANDICAPPED STUDENTS

in

VIRGINIA COMMUNITY COLLEGES

A report prepared under contract with the
Virginia Department of Community Colleges

December, 1971

JC 720 060

UNIVERSITY OF CALIF.
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Educational Research Services, Inc.
7 Holland Avenue, White Plains, New York

Educational
Research Services inc.
SCHOOL AND COLLEGE CONSULTANTS
7 HOLLAND AVENUE / WHITE PLAINS, NEW YORK 10603

December 27, 1971

Dr. Dana B. Hamel, Chancellor
Department of Community Colleges
911 East Broad Street
Richmond, Virginia 23212

Dear Dr. Hamel:

It is with pleasure that we transmit herewith our report related to the Identification and Accommodation of Disadvantaged and Handicapped Students in Virginia Community Colleges.

As is to be noted, we have observed a number of commendable steps which have been taken in the direction of accomplishing the requirement. It is evident that VCCS is geared to the task of further accomplishment in this direction.

In the undertaking of this report, I was assisted by the following members of our staff: Laurence S. Baker, Theodore Carp, Douglass Capogrossi, Jean G. Howard, and Barbara Cooper.

Respectfully submitted,

F. G. Cornell

Francis G. Cornell
President

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Chapter I

INTRODUCTION

This is a report of a study relating to the development of a master plan for the identification and accommodation of disadvantaged and handicapped students within the VCCS, Vocational Education Programs.

Objectives

The general objectives of the project consisted of the following:

1. To determine the potential number of disadvantaged and handicapped students in Virginia by community college regions

2. To identify means by which existing community colleges are currently providing special programs for the service of disadvantaged and handicapped students

3. To examine the degree to which potential disadvantaged and handicapped students are being served in numbers and in types of specialized instructional offerings

4. To identify the various State, Federal and other programs that can be used to assist in supporting college level instruction for the disadvantaged and handicapped student

5. To make recommendations on a plan which would include appropriate procedures for referral and identification of disadvantaged and handicapped students, which would result in the proper provision of instructional materials and which would provide a means of training instructional personnel, guidance counselors and others as may be necessary

The Approach to the Study

Work on the project was initially undertaken by a review of literature relating to educating the disadvantaged and handicapped at the community college level. This was followed by a direct contact with offices in the Department of

Health, Education and Welfare and State offices in Virginia regarding legislation and programs which had a bearing on the subject.

The next step was an examination of available statistical information distributable by the 22 community college regions in the system relating to the magnitude of potential disadvantaged and handicapped population to be served. Comparative analyses were made with available existing statistical information from colleges.

Another phase of the project was that of direct contact by staff in each of a sample of six existing colleges with diverse origins and serving varied demographic areas. The purpose here was to examine the degree to which potential population was being identified and appropriately accommodated as a basis for discovering needed specific aspects of a State plan.

Chapter II

THE DISADVANTAGED AND HANDICAPPED - DEFINITIONS

An initial step in developing a strategy for identification of the disadvantaged and handicapped is obviously that of defining the classes of human beings that could be included in these categories. For purposes of isolating potential community college students in these categories, there will of necessity be ambiguities because of the very breadth of the terms "disadvantaged" and "handicapped," not only in the semantic sense, but also in the realistic sense of how these terms are applied in legislation which has a bearing on serving such individuals who might be attending community colleges.

The Literal Definitions

The need for finding applicable specifications for the identification of such categories of students is evident from the simplest definitions. For example, two dictionary definitions of each are as follows:

a. The American College Dictionary

Disadvantage - absence or deprivation of advantage; any unfavorable circumstance or condition

Handicap - any encumbrance or disadvantage that makes success more difficult

b. Webster's Seventh New Collegiate Dictionary

Disadvantage (detriment) - an unfavorable, inferior or prejudicial condition

Handicap - a disadvantage that makes achievement unusually difficult

From the foregoing, the ambiguity is quite evident. In a sense the terms are synonymous, as may be seen from the analysis to follow. In actual practice, Federal programs have in many cases lumped the two together as one, and in some instances have found it desirable to amend definitions limiting categories to highly specific and objective determinations to avoid the global and ambiguous classifications which are possible.

From definitions in the various Federal programs, there are to be found some common elements in student aid programs. The emphasis here is financial need in defining the "disadvantaged." Also, handicapped has common definition elements, though more recent definitions have added to the physical, emotional and social disability -- putting this category in a broad range.

For Federal programs other than student aid which can be operated by community colleges, definitions are quite broad.

The Vocational Education Definitions

The vocational education definitions of disadvantaged and handicapped are illustrative of the scope.

Disadvantaged. In the act itself the disadvantaged (other than handicapped as defined) are defined as:

> persons "who have academic, socioeconomic, cultural, or other handicaps that prevent them from succeeding in the regular vocational education program."

The Virginia State plan has an extended definition for disadvantaged as:

> "persons whose needs result from poverty, neglect, delinquency, or cultural or linguistic isolation from the community at large, but does not include physically or mentally handicapped persons unless such handicapped persons also suffer from the handicaps described in this paragraph."

In the application of this definition, the disadvantaged are identified by two or more of the following:

a. Personality, home or emotional problems
b. Members of families with low incomes
c. Low or underachiever
d. Behind one or more grades
e. Disinterested in school, possibly irregular in attendance
f. Lack personal goals and/or sense of purpose
g. Cultural or linguistic isolation
h. Normal or above in potential ability but failing to achieve for some reason

Handicapped. In the act itself, handicapped are defined as:

> persons "who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled or other health impaired persons who by reason thereof require special education and related services."

An operating definition of handicapped in the Virginia State plan includes persons identified as:

> "educable mentally retarded, trainable mentally retarded, hard of hearing, partially sighted, blind, emotionally maladjusted, neurologically impaired, physically handicapped, and speech handicapped."

The Vocational Rehabilitation Act

An illustration of how the terms disadvantaged and handicapped have merged is the manner in which the Vocational Rehabilitation legislation has moved from the strictly physical to the mental and emotional disability and most recently to the economically and socially disadvantaged. Between this legislation and the Vocational Education legislation, it is evident that economic considerations have considerable weight in the identification of populations to be served. This is partly true because of the overlapping of definitions and partly true because of the

inevitable correlation of the several variables. For instance, low-income areas are commonly defined as those for the "disadvantaged," such as in the ESEA Title I for public schools. This is done on the assumption which is fairly well substantiated that it is in the low-income areas that there is a predominance of social maladjustment, unemployment, unsuitable health and physical environment, and the like.

Chapter III

DIGEST OF PERTINENT FEDERAL PROGRAMS

An appropriate source of information on identification and accommodation of disadvantaged and handicapped in community colleges is the Federal legislation directed at this target population. The following outline covers the most pertinent programs indicating the definition of persons to be served and the major operating features of each program.

VOCATIONAL EDUCATION ACT

Type of Assistance. Provision of vocational education programs.

Eligibility. Disadvantaged persons, other than handicapped persons, who have "academic, socioeconomic, cultural, or other handicaps that prevent them from succeeding in the regular vocational education program." Handicapped persons "who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled, or other health impaired persons who by reason thereof require special education and related services."

Community College Role. Under agreement with the State Board of Community Colleges, the fiscal 1972 Virginia State Plan provides an allotment of 25 percent of Part B funds to the Community College System and specifies the use of 10 percent of these funds for programs for the handicapped and 15 percent for the disadvantaged.

Agencies Involved. State Education Department, Division of Vocational Education.

Funding. Federal-State matching.

VOCATIONAL REHABILITATION ACT

Type of Assistance. Services of a rehabilitation counselor beginning with initial referral to a broad range of community services including physicians, public and private hospitals, rehabilitation centers, workshops, educational institutions and employers. The objective is to return the disabled to remunerative employment.

Eligibility. The mentally, emotionally or physically disabled and the economically and socially disadvantaged, whose handicaps (a) interfere with the ability to pursue a gainful occupation and (b) are such that there is a reasonable chance of an individual's being able to engage in a suitable occupation after rehabilitation services.

Community College Role. (a) Potential cooperative school program oriented to disadvantaged and handicapped such as mentally retarded, slow learners, physically disabled and emotionally disturbed, and those likely to be dropouts. (b) Possible projects for training manpower, including the handicapped, for careers in rehabilitation.

Agencies Involved. Primarily Virginia Department of Vocational Rehabilitation, with possible coordination with the Virginia Department of Community Colleges.

Funding. Largely Federal, with State matching funds.

TALENT SEARCH - Higher Education Act

Type of Assistance. Funds under grant or contract with the U.S. Office of Education for a Talent Search project for assisting financially or culturally deprived,

needy youths with exceptional potential for post-secondary education to complete secondary school and to undertake post-secondary education.

Eligibility. The universe of youth to be served is defined as "those of financial or cultural need with exceptional potential for post-secondary education."

Community College Role. May participate by applying for funds to support a Talent Search project or cooperate with another agency or agencies working toward the end of directing participating youth into college -- the respective community college or other.

Agencies Involved. U.S. Office of Education and numerous Federal, State and local agencies associated with social welfare and programs for the disadvantaged, such as the Neighborhood Youth Corps and the Juvenile Delinquency Prevention programs.

Funding. Through contract with the U.S. Office of Education, not to exceed $100,000 per year.

UPWARD BOUND - Higher Education Act

Type of Assistance. Funds to a college for undertaking programs designed to generate skills and motivation necessary for disadvantaged in education beyond high school. Possible small weekly stipends to students.

Eligibility. Students in program must meet a poverty criterion and an inadequate secondary school preparation criterion. Potential for success in a two-year or four-year college program is required.

Community College Role. Undertakes a project under grant or contract consisting of intensive summer educational program and follow-up during the academic year.

Agencies Involved. U.S. Office of Education.

Funding. Federal funding up to maximum of 80 percent of cost.

SPECIAL SERVICES FOR DISADVANTAGED - Higher Education Act

Type of Assistance. Grants to higher education institutions to provide remedial and other special services for students with academic potential who because of deprivation need such services to assist them in pursuing post-secondary education.

Eligibility. For students with academic potential and deprived educational, cultural, or economic background or physical handicap. Similar target population to Talent Search and Upward Bound with which related.

Community College Role. Provide counseling, tutoring, innovative curriculum, special personnel, summer sessions, and coordination of community services for target population.

Agencies Involved. U.S. Office of Education, community agencies and State and Federal agencies working with target population.

Funding. Through grants from U.S. Office of Education.

NATIONAL DEFENSE STUDENT LOAN PROGRAM

Type of Assistance. Long-term, low-interest loans by educational institutions to qualified students in need of financial assistance to pursue a course of study on at least a half-time basis. */

Eligibility. Financial need of student of loan in order to pursue his course of study during period for which application is made, as determined by expected

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*/ This legislation may be expiring. Latest available information indicates that it was extended through June 1972 for previous borrowers only.

family contribution, student's savings and earnings, and other available funds. In addition, student must (a) be carrying at least one-half a full-time academic workload and (b) be capable of maintaining good standing. Special consideration is given to students "with a superior academic background."

Community College Role. Approve and make loans to students and take responsibility for collections.

Agencies Involved. U.S. Office of Education.

Funding. Federal funds -- 90 percent; institutional funds -- 10 percent.

EDUCATIONAL OPPORTUNITY GRANTS PROGRAM

Type of Assistance. Grants of varying amounts for each of four years for students of exceptional financial need via higher education institution attending.

Eligibility. Exceptional financial need of student as measured by gross annual family income and expected parental or independent contribution per academic year.

Community College Role. Administers grant system by handling funds, determining eligibility, making awards, and providing matching of Federal funds.

Agencies Involved. U.S. Office of Education and National Institutes of Health.

Funding. Federal grant matched by local resources or selected stipends to students from other programs.

COLLEGE WORK-STUDY PROGRAM - Higher Education Act

Type of Assistance. Grants to educational institutions to expand part-time employment opportunities, within the institutions or in the public interest in

public or private non-profit organizations, for students in need of such earnings to attend post-secondary institutions.

Eligibility. Student must be (a) in need of earnings from such employment in order to pursue course of study at the institution, as measured by gross family income, (b) capable of maintaining good standing, and (c) enrolled or accepted for enrollment as a full-time student.

Community College Role. Responsible for selecting students in the program, defining jobs to be performed, establishing rates of pay, supervising work, handling payrolls and any other necessary details of the program.

Agencies Involved. U. S. Office of Education.

Funding. Federal to a maximum of 80 percent; remainder by institution or "off-campus agency" where student is working.

MANPOWER DEVELOPMENT & TRAINING ACT OF 1962

Type of Assistance. Program for testing, counseling, selecting for occupational training, and providing such training (including pre-vocational education) for those unemployed or underemployed persons who cannot reasonably be expected to secure appropriate full-time employment without training. Includes subsistence allowances.

Eligibility. Persons 16 years of age and over who are unemployed or underemployed because of inadequate educational background and work preparation, with priority to unemployed persons. In 1966, redirection of program to concentrate 65 percent of manpower effort toward training disadvantaged and other 35 percent

toward meeting need for trained personnel in occupations with skill shortages. Primarily poor who lack suitable employment.

Community College Role. Participates as manpower training skills center; cooperates with Virginia Cooperative Area Manpower Planning System (CAMPS) of which VCCS is a member agency.

Agencies Involved. U.S. Department of Health, Education and Welfare and Department of Labor; also appropriate State education agencies.

Funding. Federal up to 90 percent; remainder from State, public or private agencies, institutions, organizations or other sources.

Chapter IV

INCIDENCE OF POTENTIAL DISADVANTAGED AND HANDICAPPED

As a base for planning, it would be important to determine how many and what kinds of disadvantaged and handicapped there are and their geographic distribution within the State. This is not a simple undertaking, and the amount of available information at the present time is seriously limited.

The Incidence Analysis Problem

A definitive classification of categories of disadvantaged and handicapped, suiting the wide range of definitions given in the appropriate programs, requires types of information not in existence for the total eligible population for community college attendance. The kind of information that would bear on determining the number of socioeconomically disadvantaged can be approached, but the emphasis on potential students who would be eligible because of being emotionally disturbed or academically underprepared or underachieving involves information unfortunately not readily available. And, of course, the requirements of supporting legislation are such that there are interrelationships of eligibility requirements such as those for a youth with definable financial need who must also have "exceptional potential for post-secondary education," as in the Talent Search program.

Population is one index of incidence of disadvantaged and handicapped. In other words, the most populous parts of the State may be expected to be those in which there would be the largest numbers of potential community college students in these categories. However, the incidence varies not only with variations in living

conditions for the population, but also with such matters as the age distribution of the population. As has been clearly shown in a vocational rehabilitation study in Virginia, disability incidence is not a function only of population numbers. 1/

One of the most complete sources of information that would lead to a determination of needy community college students is that available from the Comparative Guidance and Placement Program. 2/ This is used by colleges as an admissions instrument. It has a broad range of data regarding the applicant's economic condition, achievement level, and educational aspirations. The classification of the needy youth in any category can be made, however, only by an interpretation of interacting dimensions in the individual case. There is, nevertheless, some statistical potential from the results of this device. Whether this device, or other information on record for admission to college, would indicate the academic, socioeconomic, and physical condition of potential community college students, classification as to need must depend upon considerable judgment on an individual basis.

An analysis can be made of the Comparative Guidance and Placement Program report for applicants for the community college system. Unfortunately, this would not be indicative of the incidence of potential population to be served. The information resulting from the types and character of need of students who have applied for admission in community colleges does not cover those who, for various reasons, did not apply. The major quantification objective in developing a plan for serving the needy population is to find those not being served.

In effect, the real definitive identification of categories of potential disadvantaged and handicapped for community college attendance would necessitate

a pre-college survey that would include considerable information on students' post-secondary intentions, socioeconomic information, achievement information, and health record information. Lacking such information, an initial step must be one of examining the potential population to be served on a gross basis.

Gross Target Population Estimation

Although there is little detailed available information by community college regions that would be of sufficient value to quantify all categories of disadvantaged and handicapped, there are available at the present time some gross sources for estimating the incidence in a manner indicative of the scope of the requirement. A start in this direction is available 1970 population census, distributed by age.

A standard approach for estimating community college population is the age group 18-21. This, of course, has its limitations because there are some in this age category that are not expected to attend college, and it is expected that this would vary in proportion among areas of the State. Moreover, there are some in the community college target population not in this age group. Nevertheless, as a point of departure, the population information for the 18-21-years-of-age group has been useful in producing some indication of incidence, as shown in Table 1.

Column 1 of this table was based upon information available by county and city on population [3] and family income [4]. County-by-county and city-by-city, population 18-21 years of age was multiplied by the proportion of households estimated in 1970 to have less than $5,000 cash income. Of a total population for the State of Virginia of 4,648,494, a total of 360,033 were reported for the age group 18-21. As may be seen from Table 1, in column 1, when only those are

Table 1

VIRGINIA DISADVANTAGED AND HANDICAPPED
POPULATION 18-21 YEARS OF AGE,
BY COMMUNITY COLLEGE POTENTIAL AND REGION

	Region	1970 population 18-21 years of age			
		Disadvantaged [a]		Handicapped [b]	
		Total	Community College potential	Total	Community College potential
		(1)	(2)	(3)	(4)
1	Northern Virginia	8,073	646	7,017	561
2	John Tyler	6,707	537	2,766	221
3	Blue Ridge	4,712	377	1,526	122
4	Central Virginia	4,245	340	1,476	118
5	Thomas Nelson	8,564	685	3,713	297
6	Southwest Virginia	3,503	280	862	69
7	Virginia Western	5,057	405	1,836	147
8	Dabney S. Lancaster	2,384	191	753	60
9	Wytheville	2,439	195	657	53
10	New River	5,780	462	1,898	152
11	Virginia Highlands	2,479	198	662	53
12/23	Danville & Patrick Henry	5,479	438	1,653	132
13	Eastern Shore Area	1,063	85	257	21
14	Lee-Scott-Wise Area	3,238	259	724	58
15	Lord Fairfax	3,096	248	876	70
16	Germanna	4,211	337	1,212	97
17	Rappahannock	2,603	208	636	51
18	Charlottesville Area	4,045	324	1,149	92
19	Richmond-Henrico Area	8,963	717	3,544	284
20	Southside Virginia	5,969	478	1,266	101
21	Paul D. Camp	1,774	142	433	35
22	Tidewater	28,002	2,240	9,011	721
	Total	122,386	9,792	43,927	3,515

a/ In households with less than $5,000 cash income

b/ Disabled and limited on basis of national incidence rate

isolated who may be considered likely to be in the severely disadvantaged category, we find a total for the State of 122,386 as an estimated number for the target population in the economically disadvantaged category.

A target community college disadvantaged potential appears in column 2. It is 8 percent of the column 1 figures on the following assumptions:

1. The total Virginia college enrollment bears a 2 to 5 ratio (40 percent) to the population 18-21 years of age.

2. The Virginia community college enrollment potential is approximately 20 percent of total college enrollment.

These data, of course, are based primarily on an index of economic need, household income, and are useful only to the extent that there is this emphasis in the geographic distribution of disadvantaged in the cultural and academic categories of the pertinent legislation.

An application of the national estimates used in the Governor's Study Commission on Vocational Rehabilitation in Virginia in 1968 1/, along with information on the bench-mark population 18-21 years of age, is an indication of handicapped or disability incidence. The national incidence rate for the disabled and limited of 12.2 percent applied to the total population 18-21 years of age, by region, appears in column 3. Assuming a potential community college attendance rate of this group of 8 percent results in the community college potential as shown in column 4.

The High School Graduate Approach

As useful as the population 18-21 years of age is, another approach might be increment oriented in terms of the potential input to community colleges.

The input, of course, is not limited to high school graduates. However, high school graduates are a major source of the incoming group. In Table 2, in the first column, is a distribution of high school graduates in 1970 reported by the State Department of Education [5]. There has been a trend that would indicate that a figure corresponding to something over one-third of high school graduates would be an indicator of potential community college input. This is shown region-by-region, totaling 20,048 in the second column of Table 2. Applying to these figures the percentage of households with less than $5,000 cash income, we come up with a high school input disadvantaged estimate as shown in the third column of this table. By means of the national disabled and limited index of 12.2 percent, we derive a handicapped index shown in the last column of the table.

Factors Other Than Population

The foregoing estimates on disadvantaged incidence took into account the economic factors, by means of correcting a population base with information on households with incomes below an acceptable level. Other types of considerations certainly are involved when the measurement of disadvantaged incidence is related to Federal legislation concerned with employment. Indices other than employment and income levels certainly would be useful, if available, for getting at the disadvantaged and the handicapped.

An indication of the variation of non-population factors among the 22 VCCS regions are the figures reported in Table 3. Here the percentage of households with less than $5,000 income is distributed as a quotient, as are unemployment and high school dropouts. In each case, the State average is 100, and a region with an

Table 2

POTENTIAL VIRGINIA DISADVANTAGED AND HANDICAPPED
HIGH SCHOOL GRADUATES ENTERING COMMUNITY COLLEGE

	Region	1970 high school graduates			
		Total	Potential Community College enrollees		
			Total	Disadvantaged [a]	Handicapped [b]
1	Northern Virginia	12,117	4,338	607	529
2	John Tyler	3,619	1,296	384	158
3	Blue Ridge	1,869	669	252	82
4	Central Virginia	2,096	750	263	92
5	Thomas Nelson	3,702	1,325	372	162
6	Southwest Virginia	1,496	536	266	65
7	Virginia Western	2,925	1,047	352	128
8	Dabney S. Lancaster	950	340	131	41
9	Wytheville	1,119	401	182	49
10	New River	1,280	458	170	56
11	Virginia Highlands	916	328	150	40
12/23	Danville & Patrick Henry	2,707	969	391	118
13	Eastern Shore Area	571	204	103	25
14	Lee-Scott-Wise Area	1,304	467	255	57
15	Lord Fairfax	1,456	521	225	64
16	Germanna	1,437	514	218	63
17	Rappahannock	1,249	447	223	55
18	Charlottesville Area	1,074	384	165	47
19	Richmond-Henrico Area	4,336	1,552	480	189
20	Southside Virginia	1,629	583	335	71
21	Paul D. Camp	720	258	129	31
22	Tidewater	7,434	2,661	1,009	325
	Total	56,006	20,048	6,662	2,447

a/ In households with less than $5,000 cash income

b/ Disabled and limited on basis of national incidence rate

Table 3

RELATIVE DISADVANTAGED INDICATORS BY VCCS REGION

	Region	Households with less than $5,000 income		Unemployment		High school dropouts *	
		Percent	Quotient	Percent of work force	Quotient	Percent	Quotient
1	Northern Virginia	14.0	41	2.2	71	2.5	56
2	John Tyler	29.6	87	2.8	90	4.7	104
3	Blue Ridge	37.7	111	2.1	68	4.4	98
4	Central Virginia	35.1	103	3.0	97	5.2	116
5	Thomas Nelson	28.1	83	4.6	148	4.2	93
6	Southwest Virginia	49.6	146	6.7	216	6.2	138
7	Virginia Western	33.6	99	2.9	94	3.9	87
8	Dabney S. Lancaster	38.6	114	4.1	132	4.3	96
9	Wytheville	45.3	133	3.9	126	4.5	100
10	New River	37.2	109	2.8	90	4.1	91
11	Virginia Highlands	45.7	134	5.3	171	4.6	102
12/23	Danville & Patrick Henry	40.4	119	3.1	100	6.3	140
13	Eastern Shore Area	50.4	148	4.2	135	5.8	129
14	Lee-Scott-Wise Area	54.6	161	7.2	232	5.3	118
15	Lord Fairfax	43.1	127	3.5	113	4.6	102
16	Germanna	42.4	125	2.8	90	5.5	122
17	Rappahannock	49.9	147	4.6	148	4.6	102
18	Charlottesville Area	43.0	126	2.0	65	4.4	98
19	Richmond-Henrico Area	30.9	91	2.0	65	5.1	113
20	Southside Virginia	57.5	169	3.3	106	7.2	160
21	Paul D. Camp	50.0	147	3.6	116	5.7	127
22	Tidewater	37.9	111	3.6	116	5.4	120
	Total	34.0	100	3.1	100	4.5	100

* Percentage of grade 8-12 dropouts to grade 8-12 enrollment, 1969-70. 5/

indicator over 100 is one which is in more serious condition than average. That is to say, the higher the quotient, the more it is indicative of disadvantagedness. The lower the figure, the more the opposite is true.

It is of interest that the three variables in Table 3 are intercorrelated, meaning that a region high in one is likely to be high in the others. The relationship is far from perfect, as may be seen from comparing quotients. Region 5, for instance, has a high unemployment quotient but is low in the other two indicators. The highest intercorrelation is between the household income index and high school dropouts, $r = .7105$. This is evidence that the potential disadvantaged, as indicated by the likelihood of not being in school, is clearly a consequence of economic status. The unemployment measure is also somewhat related to the family income economic index, $r = .5438$. The relationship between the unemployment and the high school dropout measures is low, $r = .2815$.

Handicapped Categories

The foregoing statistics have been presented as a means of examining the overall incidence of the disadvantaged and handicapped. It is necessary, of course, in specific decision making and planning in each individual community college and for the entire system, to take into account specific categories of special need. This is clearly indicated by the variation in incidence of handicapped for the State as a whole, as reflected in Table 4. The types of disabled eligible for vocational rehabilitation include not just the orthopedic, visual and hearing categories, but also the mental retardation and mental illness, apparently in high frequency. The relative frequency of potential handicapped to be served by community colleges in

Table 4

ESTIMATED INCIDENCE IN VIRGINIA OF DISABLED ELIGIBLE FOR VOCATIONAL REHABILITATION, 1965 1/

Disability	Incidence	
	Number	Percent
Orthopedic	33,900	32.8
Visual	3,000	2.9
Hearing	5,180	5.0
Respiratory and tuberculosis	6,100	5.9
Mental retardation	33,000	31.9
Mental illness	8,150	7.9
Epilepsy	3,500	3.4
Cardiac	5,000	4.8
All other	5,000	4.8
Sub-total	102,830	99.5
Prisoners in State penal system	500	1.0
Total	103,330	100.5

Source: Governor's Study Commission on Vocational Rehabilitation - Commonwealth of Virginia, 1968. New Dimensions.

Virginia through such sources as vocational rehabilitation is indicated in Table 5, showing the number of Virginia rehabilitants in 1970.

Poverty Potential versus Current Enrollment

By means of the local cumulative report as of September 1970 of the Comparative Guidance and Placement Program as applied to the VCCS, a statistic was derived for the 3,948 applicants at that time showing the percentage of those, college-by-college, that were reported to be in the parental income bracket below $7,500. These results are shown in Table 6. In the last column of this table are the figures derived as percentages of population 18-21 in households with less than $5,000 cash income. The $5,000 cash income requirement is quite comparable to the $7,500 income requirement.

A comparison of the last two columns of figures shows some very interesting differences in percentages. This is indicative of the possible direction required to reach the disadvantaged population, a good portion of which is determined by financial need, that is not being reached at the present moment.

The Community College System in Development

Part of the task of reaching the disadvantaged and handicapped population not now reached is the completion of the geographic development of the Community College System. There are other colleges to be established that would provide more facilities and more capacity than now exist. It is of interest to see how some index of the potential by region, irrespective of the disadvantaged, compares with current enrollment.

Table 7 contains a percentage index based on population 18-21 years

Table 5

NUMBER OF VIRGINIA REHABILITANTS, 1970
VOCATIONAL REHABILITATION PROGRAM [1]

Disability	Rehabilitated	
	Number	Percent
Visual impairments	153	1.7
Hearing impairments	278	3.0
Orthopedic deformities or functional impairments, except amputations	1,267	13.9
Absence or amputation of major and minor members	250	2.7
Mental, personality, and intelligence disorders	1,897	20.8
Mental retardation	1,297	14.2
Neoplasms	497	5.4
Allergic, endocrine, etc., disorders	282	3.1
Blood diseases, etc.	27	0.3
Other nervous disorders	163	1.8
Heart and circulatory conditions	489	5.3
Respiratory diseases	136	1.5
Digestive system disorders	1,405	15.4
Genito-urinary system disorders	791	8.7
Speech impairments	66	0.7
Other disabling conditions	141	1.5
Total	9,139	100.0

Table 6

COMPARISON OF POVERTY INCIDENCE OF VCCS ENROLLEES AND ESTIMATED POTENTIAL

	Region	1970 CGP Report 2/ Number of students			Percent of population 18-21 years of age in households with less than $5,000 income
		Total	with parental income below $7,500		
			Number	Percent	
1	Northern Virginia	804	74	9.2	14.0
2	John Tyler	171	48	28.1	29.6
3	Blue Ridge	202	60	29.7	37.7
4	Central Virginia	193	61	31.6	35.1
5	Thomas Nelson	412	91	22.1	28.1
6	Southwest Virginia	106	48	45.3	49.6
7	Virginia Western	507	119	23.5	33.6
8	Dabney S. Lancaster	195	89	45.6	38.6
9	Wytheville	109	49	44.9	45.3
10	New River	194	88	45.4	37.2
11	Virginia Highlands	110	49	44.5	45.7
12/23	Danville & Patrick Henry	215	91	42.3	40.4
13	Eastern Shore Area	--	--	--	50.4
14	Lee-Scott-Wise Area	--	--	--	54.6
15	Lord Fairfax	165	63	38.2	43.1
16	Germanna	77	23	29.9	42.4
17	Rappahannock	--	--	--	49.9
18	Charlottesville Area	--	--	--	43.0
19	Richmond-Henrico Area	--	--	--	30.9
20	Southside Virginia	97	44	45.4	57.5
21	Paul D. Camp	--	--	--	50.0
22	Tidewater	391	84	21.5	37.9
	State total	3,948	1,081	27.4	34.0

Table 7

COMMUNITY COLLEGE POTENTIAL AND ACTUAL ENROLLMENT, 1970

	Region	Potential enrollment		Actual full-time enrollment	
		Number	Percent	Number	Percent
1	Northern Virginia	4,601	16.0	4,839	30.5
2	John Tyler	1,814	6.3	1,042	6.6
3	Blue Ridge	1,001	3.5	693	4.4
4	Central Virginia	968	3.4	888	5.6
5	Thomas Nelson	2,435	8.5	1,135	7.1
6	Southwest Virginia	566	2.0	644	4.1
7	Virginia Western	1,204	4.2	1,635	10.3
8	Dabney S. Lancaster	494	1.7	358	2.3
9	Wytheville	431	1.5	660	4.2
10	New River	1,244	4.3	443	2.8
11	Virginia Highlands	434	1.5	418	2.6
12/23	Danville & Patrick Henry	1,084	3.8	1,159	7.3
13	Eastern Shore Area	169	0.6	---	---
14	Lee-Scott-Wise Area	475	1.6	---	---
15	Lord Fairfax	575	2.0	353	2.2
16	Germanna	795	2.8	252	1.6
17	Rappahannock	417	1.4	---	---
18	Charlottesville Area	753	2.6	---	---
19	Richmond-Henrico Area	2,324	8.1	---	---
20	Southside Virginia	830	2.9	147	0.9
21	Paul D. Camp	284	1.0	---	---
22	Tidewater	5,909	20.5	1,224	7.7
	Total	28,807	100.2	15,890	100.2

of age. The 28,807 is 8 percent of the 18-21-years-of-age group. It is assumed to represent equivalence of full-time attendance in community college, as compared with the full-time enrollment reported in 1970. It is to be recognized, of course, that these are not strictly comparable statistics in that (a) the potential, based on population 18-21, includes students of that age level who would not attend full time, (b) the actual full-time figure includes many students over 21, and (c) there is considerable variation among the colleges as to full- or part-time attendance and population components to be served. It is to be noted that there are geographic areas which do not yet have their VCCS colleges in which the disadvantaged and handicapped are not now served.

Chapter V

PROGRAM COMPONENTS

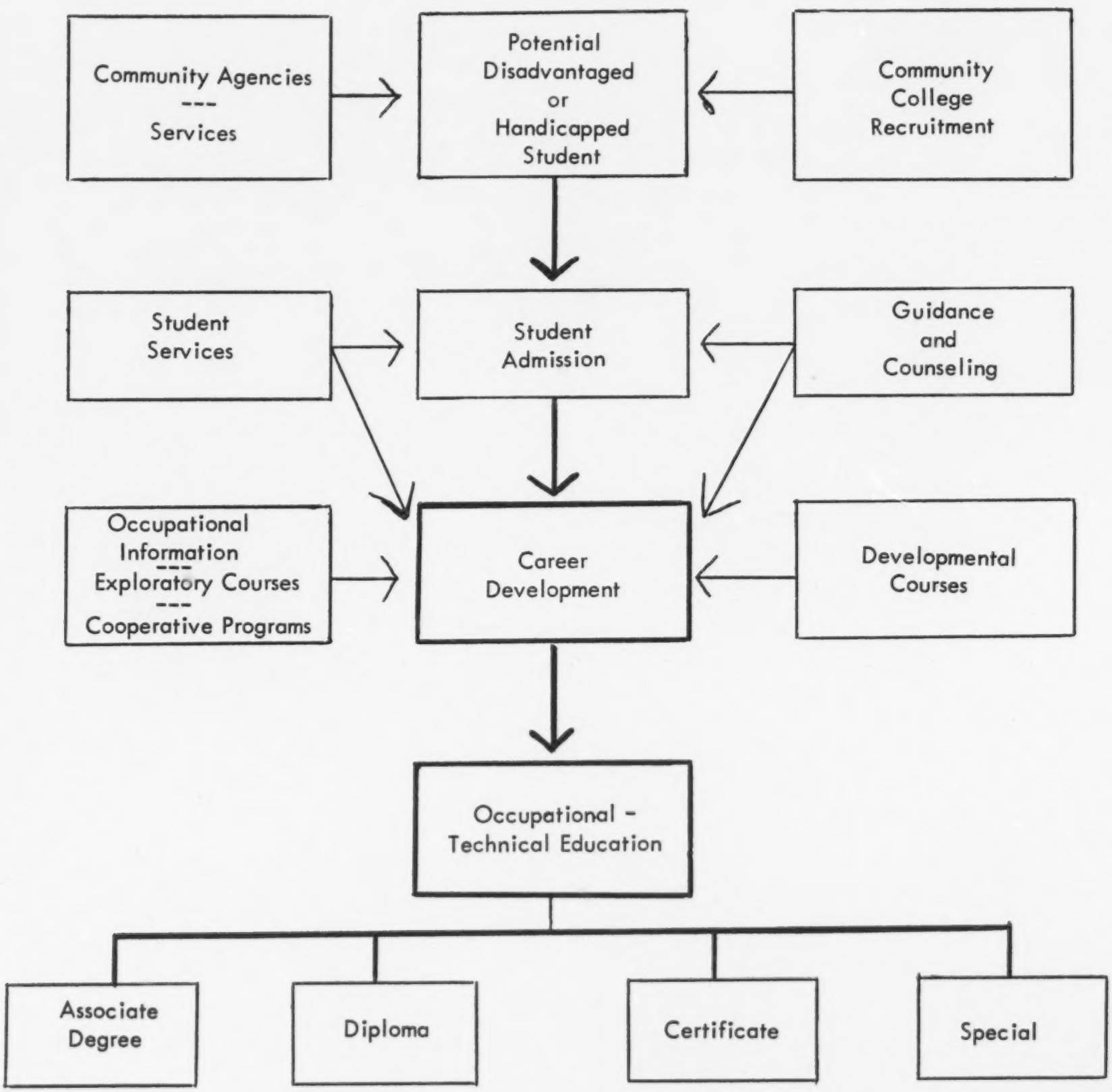
From various sources it is possible to indicate desirable features of community college programs for the disadvantaged and handicapped. In this section a program framework is outlined. It is based upon pertinent literature, a review of related Federal legislation, and contacts with community colleges in Virginia and elsewhere.

The Vocational Education Act places emphasis on remedial vocational and academic instruction and on guidance and counseling, including services which facilitate job choices and job placement. Vocational education thus becomes a "meld of occupation training, basic-remedial education, and guidance and counseling services, to make students employable." 7/

Key ingredients of the system include:

1. Active recruitment of students
2. An effective system of guidance and counseling and student services
3. Remedial courses and program sequences to be used when necessary to develop minimum academic competencies for beginning students
4. Flexibility in institutional structure to allow design and adoption of new curricular elements when needed for special groups of students for the job of building occupational competencies. 6/

The accompanying diagram is an attempt to portray the system graphically, beginning at the top with the potential student who has not been in the institution. The impact upon him consists of community agencies, other services and



VCCS PROGRAM FOR DISADVANTAGED AND HANDICAPPED STUDENTS

programs quite independent of the community college serving his area, and the initiative which might be taken by the community college itself in recruitment. At the second level, he becomes admitted, at which time the intensive discovery of student input and needs through guidance and counseling and student services directs him appropriately to his channel of career development. This may lead to short-term adjustment to the world of work or as far as the associate degree.

Community Agencies and Services

Disadvantaged and handicapped students may be identified and referred to Community College through a variety of sources such as the following:

Federal Agencies and Programs: Neighborhood Youth Corps, Job Corps, Upward Bound, Talent Search, Community Action Programs, Veterans Administration Rehabilitation, Labor Department (MDTA)

State Agencies and Programs: Virginia Employment Commission, Department of Welfare, Vocational Rehabilitation Services, Visually Handicapped Services, CAMPS, WIN Program

Local Agencies and Programs: Local employment agencies, juvenile court personnel, public health agencies, housing authority, welfare agencies, YMCA, YWCA, youth boards

Miscellaneous Local Sources: High schools in area, community groups concerned with education, professional and business groups interested in improving community-school relations, priests, ministers, rabbis, social workers, trained youth workers, recreation workers, neighborhood center workers, special agencies for specific disabilities, civil rights groups

Community College Recruitment

Local community colleges are not likely to have disadvantaged students voluntarily applying for admission even though other agencies and services are attempting to identify such students. The disadvantaged and handicapped students are very likely to be overlooked unless the local college participates directly in the dissemination of information regarding available services and in making such contacts as will accomplish identification of specific potential students and will contribute to their recruitment. Such essential activities include the following:

- Dissemination of descriptive literature about the institution, including those advantages of the institution which will most appeal to the students being sought and will deal most directly with their questions
- Publicizing availability of sufficient financial aid for all students, including scholarships and special projects sponsored by business, industry and trade unions
- Use of all forms of communication media -- public service time on radio and TV; placards in public transportation vehicles and terminals; placards in bowling alleys, pool halls, public recreation areas, etc.
- Talks to community action groups and social service agencies by members of college staff and students
- Assemblies in schools
- Contacts with parents
- Use of mobile van by which information and counseling personnel can move out into the community, directed primarily at socioeconomically deprived, located in high density sections and at shopping centers, exhibits, high schools, other places where groups congregate
- Establishment of admission policy such that students might enter at various times of the year
- "Outreach surveys" in areas of high unemployment regarding current employment status, reasons for and attitudes about unemployment and underemployment, general educational and employment aspirations and goals.

Student Services

Strategically related to the admission, that is to say the acceptance by a disadvantaged or handicapped student of the decision to go to a community college, are supportive services to offset deprivation. It is essential that there be some coordination of staff in a college, such as financial aid officers, counselors and others, at the time of induction of such students to make a proper referral of a student to such services. An adequate process involves preparing the student and the receiving agency and following up by encouraging the trainee to return to discuss results.

In the main, VCCS colleges provide student services of varying scope, including, as indicated in catalogs, information regarding grants-in-aid, student loans, loan funds, work-study programs, and special sources of financial support such as Educational Opportunity Grants.

As has been noted in some analyses of work with the disadvantaged, sometimes consideration should be given to overcoming highly specialized barriers to success for the disadvantaged such as providing day care or baby sitters for female students with children, providing legal services and health services, and assistance in providing transportation facilities.

Guidance and Counseling

The guidance and counseling component provides a function operating desirably throughout the entire sequence of the student's community college experience, from admission through to placement and followup. It is a function considerably more than that to be provided by a single counselor or other staff member,

requiring such specialized staff as properly oriented instructors, social workers, health officials, psychologists, and job developers. The guidance and counseling function is conceived as an integral part of the student's educational development. It is to be continuously available to assist the student in his transition to the educational program, in resolving scholastic and personal problems, and in his transition to the world of work.

The Instructional System

The lower half of the diagram introduced in this chapter shows the student after admission entering "career development," with the continuing impact of student services, guidance and counseling, occupational information, exploratory courses, cooperative programs, and developmental programs.

Developmental courses vary considerably in community colleges. Most colleges focus their developmental program on remedial courses such as communications skills, developmental reading, introductory algebra, science concepts, and use of individualized instruction in a learning resource center. In some cases the developmental program goes beyond basic remedial academic instruction, spilling over into the career development instruction. An example of this is the "99" approach in one of the Virginia community colleges, in which there are certificate credit courses in some of the occupational-technical fields, such as electricity and electronics, mechanical engineering, and secretarial science.

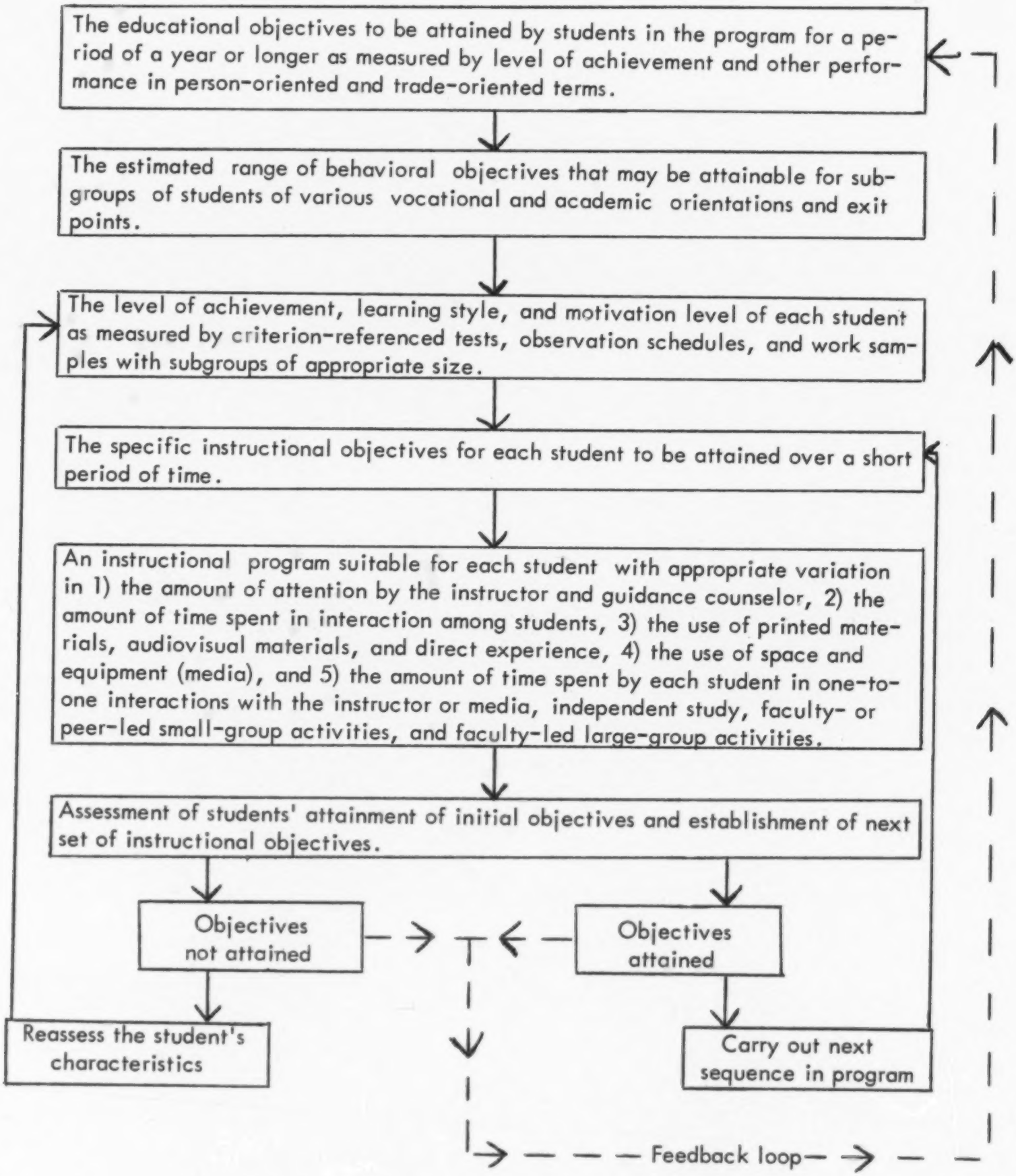
The career development is thus indicated on the diagram with not only the developmental courses but continued guidance and exploratory work and, depending upon the individual student, possible placement or movement into an occupational-

technical program leading to either an associate degree, a diploma or a certificate, or possibly into a highly specialized program based upon the identified needs of disadvantaged or handicapped students and labor market requirements.

The systems approach is the recommended framework for the development of the educational programs for the disadvantaged and handicapped in Virginia community colleges. "It places emphasis on student need, program need, implementation, evaluation, feedback and revision. It is a scientific method for attacking the problems of vocational education for the disadvantaged." 7/ There is in operation in Virginia community colleges a vocational education research and personnel training project, Learning Resources for the Disadvantaged Student, directed at program development in what may be considered an initial attack along the systems approach. Presumably this will be followed with additional steps starting with the vocational orientation of defining work for which training is to be given, followed by job analysis to identify knowledge and skills needed for entry-level employment, determination of modular units of training, and identification of "spin-off" or exit points at which students leave formal training for part-time or full-time employment.

Whatever the detail of the instructional program in a community college, it may have some things in common with other community colleges, but presumably it is tailor-made to serve both the unique needs of its disadvantaged and handicapped students and the unique requirements for employment in its region. Nevertheless, it is assumed that the program is highly adapted to individual student needs and consistent with the needs, abilities, interests, and aspirations of each student.

The following diagram is intended as a brief sketch of the systematic approach of directing the instructional process to efficient accomplishment of the


The educational objectives to be attained by students in the program for a period of a year or longer as measured by level of achievement and other performance in person-oriented and trade-oriented terms.
The estimated range of behavioral objectives that may be attainable for subgroups of students of various vocational and academic orientations and exit points.
The level of achievement, learning style, and motivation level of each student as measured by criterion-referenced tests, observation schedules, and work samples with subgroups of appropriate size.
The specific instructional objectives for each student to be attained over a short period of time.
An instructional program suitable for each student with appropriate variation in 1) the amount of attention by the instructor and guidance counselor, 2) the amount of time spent in interaction among students, 3) the use of printed materials, audiovisual materials, and direct experience, 4) the use of space and equipment (media), and 5) the amount of time spent by each student in one-to-one interactions with the instructor or media, independent study, faculty- or peer-led small-group activities, and faculty-led large-group activities.
Assessment of students' attainment of initial objectives and establishment of next set of instructional objectives.
Objectives not attained
Objectives attained
Reassess the student's characteristics
Carry out next sequence in program
Feedback loop

OCCUPATIONAL-TECHNICAL EDUCATION
PROGRAMMING MODEL FOR DISADVANTAGED

learning needs in a career development or occupational-technical program.

Chapter VI

PRESENT STATUS

We consider at this point the matter of the extent to which the Virginia Community College System is accomplishing the task of appropriately serving disadvantaged and handicapped individuals in vocational-technical education. It is evident that commendable strides have been taken in the direction of meeting needs in this area in community colleges. However, there clearly are further steps to be taken to achieve what may be considered a complete system.

The Population Served

It is clear from gross statistics, as reported in Chapter IV, that there are many more potential community college enrollees in the disadvantaged and handicapped categories than are actually enrolled in the Virginia community colleges. Generally speaking, it appears that the existing enrollment of disadvantaged is distributed among community college regions pretty much in line with variations in the incidence rates. Nevertheless, the overall potential is of such a magnitude as to suggest the adoption of measures which will result in further accomplishments of suitable program objectives. Outside of programs originating through the Virginia Department of Vocational Rehabilitation, there is a considerable gap in the area of serving the handicapped.

Developmental Programs

The establishment of developmental programs in VCCS is clearly a step

forward in the direction of accomplishing objectives of the program under consideration. In addition, the further endeavor of the current two-year vocational education project, Learning Resources for the Disadvantaged Student, under the direction of the Virginia Department of Community Colleges, is to be assessed as a desirable effort in the direction of reexamining the developmental program and possibly moving in to other areas critical in serving disadvantaged and handicapped populations.

Unfortunately, as a matter of record and funding, only the developmental courses are considered as programs for the disadvantaged under the State Plan for Vocational Education, which calls for 15 percent of the funds allocated to the community college system to be for the disadvantaged. In contacts with a sample of the Virginia community colleges, a form was presented in which were listed several services and programs as sources of tuition and other funds used for disadvantaged and handicapped students. In no single instance did an institution in reporting on this form indicate that funds for the disadvantaged and handicapped were being received under the Vocational Education Act. It is evident that, because of the method of allocating vocational funds to the developmental courses, faculty and staff are not aware of this funding which comes through the Virginia Department of Community Colleges.

Special Projects

There are in operation some unique and exemplary special programs directed at the disadvantaged in community colleges in Virginia. The Virginia Community College System recognizes the importance of supplementing the standard occupational-technical curricula with "special training" programs essential for

tailor making vocational programs to the employment requirements of the disadvantaged, the handicapped and others. Samples of some of the highly specialized projects now in existence in the system which fit the desired model of career development for the disadvantaged and handicapped include:

1. Several Virginia community colleges serving as "skills centers" in the Manpower Development and Training Program (MDTA) in the State

2. A crafts production curriculum for one college being developed in cooperation with the State Vocational Rehabilitation Service, with potential for providing certain types of handicapped persons with marketable skills

3. A vocational education project in another college to recruit and train day care aides

4. A New Careers training program in medical technology for one college, with tuition and fees funded by the Department of Labor

5. A work-study program in one college on developmental studies level under Part G of the Vocational Education Act, Cooperative Vocational Education Programs

6. A Special Services project under the Higher Education Act for low-income students, with use of a counseling van to reach out-of-school disadvantaged youth

The Information System

From contacts with Virginia community colleges, it is evident that there is considerable variation within the colleges themselves in knowledge concerning the presence of disadvantaged and handicapped students. In the main, the chief sources of information relate only to student financial aid which is administered through personnel in the college or, as frequently mentioned, the Vocational Rehabilitation Program. In addition to this, there are highly specialized sources in those

colleges which do have highly specialized programs for the disadvantaged.

The lack of information about students who are in the disadvantaged and handicapped categories is largely due to the fact that for most colleges there is no focus on vocational education for the disadvantaged and handicapped other than Vocational Rehabilitation courses and the developmental programs. The majority of the colleges contacted indicate that they have no special courses or programs aimed specifically at disadvantaged or handicapped students. Unless they do have such programs, there would be no basis on which to secure information concerning the numbers of students in various categories served. The information on students in this category of need is unavailable in some institutions partly because half of the institutions indicate that they do not have special guidance personnel assigned to such students and those that do indicate special guidance personnel in this category specify that they are part-time personnel.

Colleges contacted, in the majority, consider it likely that there are students in the college who would be eligible for participation in funded programs but who are not identified as such. Most of the colleges indicate that they have no method for identifying such students and offering them special services. Also, a majority of the colleges contacted indicate that in the area covered by the college there are particular groups of potential students not being reached by the college.

There is a tendency in the institutions to operate on the assumption that the so-called disadvantaged or handicapped student is better off if not earmarked in a manner that would separate him and identify him in such a way as to place him in an unproductive social milieu for his proper learning. As one of the colleges reported,

"Our approach to special programs for these students is to avoid placing on them the labels 'disadvantaged' or 'handicapped.' Hence, we have no readily recognizable groups for reporting purposes. However, we agree with you that more data is needed if we are to do the job we want to do in helping the disadvantaged and handicapped students who come to us."

In the main, the community colleges are aware of student aid programs which are predominantly administered through the colleges themselves. However, the complicated system for taking advantage of resources for the support of instructional programs makes it difficult for colleges to be aware of such programs. As indicated above, the lack of knowledge in colleges of the developmental programs considered as vocational education for the disadvantaged is clearly an indication of this gap in information on programs themselves.

On the state level, it is obviously difficult to have, on a statewide basis for purposes of planning, information concerning students in various categories and the programs to serve them. One source of information on the state level, for example, is obtainable from summaries of the Comparative Guidance and Placement Tests, but this information is available only for those students who take the test prior to admission. The gap in student information is in the process of being eliminated by the introduction this year by the system of a student data form which includes minimal basic information on the student's educational record and socioeconomic background. This step is a move in the right direction not only for purposes of having available information on the student body related to the special needs of some segments of the student population, but also to serve as a bench mark for research and evaluation, the

need for which is clearly indicated in a plan following the systems approach.

In Summary

Although there are several commendable specialized projects focusing upon segments of the disadvantaged and handicapped population in Virginia community colleges, there is an evident gap not only in the system of recruitment for admissions but also in the clear specification of instructional programs for these students. In the main, the developmental programs are a step forward, but alone they do not constitute an instructional system for the population component of interest here. Specialized courses and scheduling are not enough. The requirement for the educational operation recommended by those specializing in the field of vocational education for the disadvantaged and handicapped is a type of individualization along lines of the prospective described in the previous chapter.

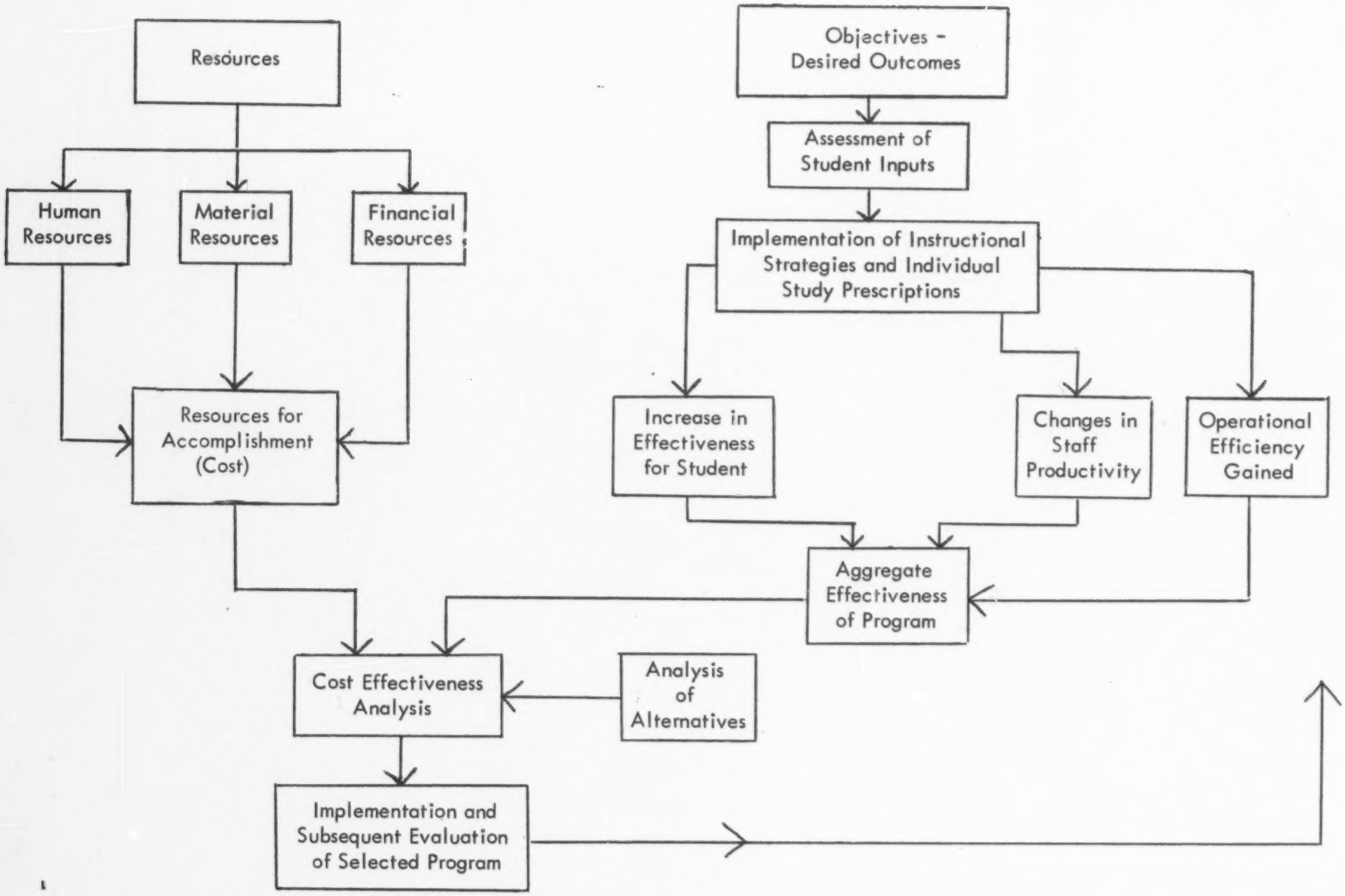
Chapter VII

IMPLEMENTATION STRATEGY

In line with the approach of this analysis, it is to be assumed that there is always a need for anticipating improvements in programs for the disadvantaged and handicapped. From the observation of Chapter VI, it is evident that there are improvements to look forward to. We now examine the approach for implementing and organizing for instituting advances in the development of effective programs for the disadvantaged and handicapped in Virginia community colleges.

Program Development

A systems model for development of programs for the disadvantaged and handicapped is sketched briefly in the accompanying diagram. Indicated here are the considerations that are involved in developing effective programs. On the right-hand side, we start appropriately with the specification of desired outcomes, the objectives to be accomplished for such students. We then consider, with the best possible available information, the profile of the student population to be served as indicated by the block labeled "assessment of student inputs." Matching the student inputs with objectives, we then come up with a program for implementing instructional strategies and individual study prescriptions. This we examine in terms of three sectors. One is extent of improvement in effectiveness for the student, another is changes in staff productivity, and a third is operational efficiency to be gained. If the innovation or modification contemplated shows enhancement in these three areas, we then have an indication of the aggregate effectiveness of the program.



SYSTEMS MODEL FOR DEVELOPMENT OF PROGRAMS FOR
DISADVANTAGED AND HANDICAPPED IN VIRGINIA COMMUNITY COLLEGES

Implied in the foregoing is the necessity for considerable research and assessment. For example, there would need to be information available from such items as (a) an examination of existing programs for the disadvantaged and handicapped, (b) an evaluation of the extent to which the target population is served, and (c) a review of the extent to which resources are utilized. Such matters as evidences of increase in student effectiveness imply the use of measures of student achievement levels plus follow-up out of school into the labor market to determine the extent to which appropriate occupational end products have been accomplished by the students. Assessment in the management category is required for productivity and operational efficiency of the system also.

The next consideration is of elements appearing on the left-hand side of the diagram relating to human resources, material resources and financial resources for accomplishment of the program. These tied together with the assessment of the effectiveness of the program relate to a cost effectiveness analysis common in the PPBS, planning, programming, budgeting systems approach. 16/ This step also involves consideration of an additional element, namely, alternative assessment.

The proposed modification or new aspect of the program would need to be examined as to feasibility, technical evidence, personal preferences, priorities, and the like. The program or modification then becomes instituted through the step of implementation, and subsequent evaluation takes place in a pattern of continuous feedback or ongoing continuous assessment with changes as required. The end result is either a specification of necessary changes or possible termination of the selected program or modification.

It is obvious that to accomplish such program strategies is not a simple task. As a matter of fact, the diagram is an oversimplification of what is involved. Nevertheless, it is indicative of an approach which, if followed by the Virginia Community College System, would likely result in maximum effectiveness.

Organization Structure for Instituting New Programs

In an effort to apply the foregoing approach specifically to the instituting of new programs for disadvantaged and handicapped in Virginia community colleges, an analysis has been made of activities and responsibilities of individual community colleges and the Virginia Department of Community Colleges in the two phases of (1) initiating a new program or modification and (2) implementing same. It is evident that in initiating a program change there can be an origination through the individual regional community college, through the Virginia Department of Community Colleges, or through a combined attack.

Initiating program changes can come about, for example, through individual community colleges and/or the State Department through such inputs as the following:

Regional Community College

- By establishing evidence of need through evaluation of existing program
- Through interaction with local community such as to determine emerging student input potential and occupational opportunities
- From direct action of outside State, Federal or other agency (i.e., U.S.O.E., O.E.O., Virginia Department of Community Colleges, Virginia Department of Vocational Rehabilitation)
- On basis of cooperative action with or in response to advisory services of Virginia Department of Community Colleges.

Virginia Department of Community Colleges

- Through continuous need research for identification by region of disadvantaged and handicapped, specification of characteristics of same, and determination of areas of work for which training should be given
- By direct action where required by legal or administrative structure or where action is statewide
- Through advisory services and assistance to regional community colleges on basis of serving as central information center on available resources for serving the program and means of implementing same
- Through development of statewide evaluation system producing continuous "feedback" on program effectiveness
- By providing appropriate liaison with pertinent State agencies such as Virginia State Department of Education, Virginia Employment Commission and Virginia Department of Vocational Rehabilitation.

Implementing, that is to say getting a program into operation, again involves the development of a system with a proper distribution of responsibilities among the individual colleges and the State Department as follows:

Regional Community College

- Has major responsibility for implementing of program in terms of performance standards and behavioral objectives
- Prepares special training guides and course outlines for instructors
- Undertakes appropriate in-service training for instructors
- Provides suitable facilities to accommodate program
- Augments and adapts counseling functions and supportive services as necessary
- Works with employers or appropriate agencies in developing job placement and career development

- Augments staff, such as with new instructors, paraprofessionals, peer-group work-study assistants, and outside personnel needed in diagnosis, counseling, etc.

State Department of Community Colleges

- Provides services to regional community colleges in the development of specialized occupational-technical curricula as required

- Serves as required in liaison with other agencies in applying appropriate evaluation criteria related to such matters as: adequacy of facility, effectiveness of instruction, the nature of work experience programs, the placement and follow-up of graduates, proper use of funds

- Develops and maintains statewide data bank on students and programs suitable for appropriate information and evaluation system.

Instructional Materials and Equipment

To this point, the emphasis of the analysis has been on the system for determining what is to be taught. There is now the matter of how it is to be taught. This relates to what materials, media, equipment, and so forth are to be used. In the comprehensive career development program envisioned herein for disadvantaged and handicapped students, desirable materials and equipment can be those required for the entire gamut of academic and technical instructional experiences offered in community colleges.

One area of special concern is the material and facilities required for the instructional technology associated with the developmental programs. An appropriate essential element is the materials and media used in the "programmed materials laboratories" or "learning laboratories."

Current best thinking and research on media selection emphasizes that

such selection should be a consequence of these undertakings:

1. Involvement of participants -- instructors, specialists in learning, evaluation and media, and administrators

2. Analysis of needs and roles of learners

3. Specification of what is to be taught, what skills are to be learned, and so forth

4. Specification of terminal objectives

5. Selection of effective communication techniques for appropriate learning experiences

6. Determination of teaching mode

7. Provision for evaluation

8. Recycling [18]

As one student of the subject puts it, "Months, semesters, or years may elapse in completing the first six steps."

There has been considerable research on the nature and use of such instructional devices as programmed texts, teaching machines, audiovisual programs, computer-assisted instruction, and multimedia programs. In general, the results indicate that use of such media permits learners to acquire more significant information than can be gained through the traditional text-laboratory-lecture approach. [17]

Such devices for instruction have been and will continue to be slow in becoming widespread in application because:

- There are too many ambiguities of what to teach -- content
- There is continuing obsolescence of programs and equipment
- Hardware, the equipment, dominates at the expense of software, the program

- Research is wanting in many areas as to whether one instructional system is better than another
- There are as yet not enough programs of the right type
- There are inadequate and incomplete systems for selection and precise prescription
- There are administrative barriers to planning, organizing, staffing and financing [17]

In view of the foregoing and in view of the yet to be developed curricular programs to serve the disadvantaged and handicapped in Virginia community colleges, the best recommendation for materials and media is the development of an instructional system along lines discussed in this chapter. This entails the teaming up of administration, faculty and specialists to get a continuous assessment-oriented examination of teaching styles and learning styles as they relate to the accomplishment of objectives.

There is considerable variation among the Virginia community colleges as to the types of media and learning laboratories and their use. It would, therefore, be of value not only to get the systems approach operating in all colleges but to establish a communication network for exchange of information on effectiveness in the media sphere.

Organization Implications

It is evident that, in order to properly direct energies of the Virginia Community College System toward education of the disadvantaged and handicapped, this analysis and the current two-year "Research and Personnel Training" project are merely the beginnings of what needs to become a continuing means of effectively operating.

To undertake some of the tasks implied in this report, there should be specialized permanent staffing both in the State Department and in the individual community colleges. On the state level, the establishment in the administrative structure of a unit with a full-time director responsible exclusively for the coordination of all efforts related to the vocational education of the disadvantaged and handicapped would be thoroughly justified. Full implementation of the program should ultimately result in augmenting various organizational units in the state office. For example, the development of an appropriate communication and information system related to the program might involve more than one division of the Department. The instructional technology emphasis to be expected would clearly draw upon various types of expertise related to curriculum, to student services, to funding, and to in-service training and evaluation.

The establishment of a unit which can focus on this problem would be a means by which available funds such as those for vocational education and for vocational rehabilitation can be desirably put to best use for the disadvantaged and handicapped. The establishment of a liaison, for example, between the Department of Community Colleges and the Department of Vocational Rehabilitation should be a step forward because of the extensive services available through Vocational Rehabilitation in the identification of students to be served and providing programs for same. Similarly, staffing in the Department of Community Colleges that would focus efforts on vocational education for the disadvantaged could result in the development with the State Department of Education of a system of allocation of funds under the State Plan such that programs for the disadvantaged would be properly developed and re-

directed and clearly identified as such.

Outside of exemplary programs under special funding in some community colleges in Virginia observed in this study, there appear to be staffing gaps in colleges which should be overcome if they are more adequately to serve the disadvantaged and handicapped. Some reorganization of existing staff may be contemplated to more properly focus on the complete instructional system required. Definitely, where individual colleges will adequately reach the population to be served, there will need to be additional specialists such as full-time counselors participating in the program as a means of effectively accomplishing the task.

Virginia community colleges have taken steps forward for reaching a special population to be served. There appears to be justification for organizing in such a manner as to concentrate on a program of such potential.

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